Airline Finance
Third Edition

PETER S. MORRELL
Cranfield University, UK

ASHGATE

© Peter S. Morrell 2007

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the publisher.

Peter S. Morrell has asserted his right under the Copyright, Designs and Patents Act, 1988, to be identified as the author of this work.

Published by
Ashgate Publishing Limited
Gower House
Croft Road
Aldershot
Hampshire GU11 3HR
England

Ashgate Publishing Company
Suite 420
101 Cherry Street
Burlington, VT 05401-4405
USA

Ashgate website: http://www.ashgate.com

British Library Cataloguing in Publication Data
Morrell, Peter S., 1946-
Airline finance
1. Airlines - Finance
I. Title
387.7'1

Library of Congress Cataloging-in-Publication Data
Morrell, Peter S., 1946-
Airline finance / by Peter S. Morrell. – [3rd ed.].
p. cm.
Includes bibliographical references and index.
ISBN 978-0-7546-7000-1
1. Airlines–Finance. I. Title.

HE9782.M67 2007
387.7'1--dc21

2006034812

ISBN 13: 978 0 7546 7000 1 (Hbk)
ISBN 13: 978 0 7546 7134 3 (Pbk)

Printed and bound in Great Britain by MPG Books Ltd, Bodmin, Cornwall.

Contents

List of Figures viii
List of Tables ix
Preface xiii

1 Industry Financial Performance 1
  1.1 World Airline Financial Results 1
  1.2 Factors Affecting Financial Results 8
  1.3 Asset Utilisation 10
  1.4 Key Financial Issues 12

2 Airline Financial Statements 15
  2.1 Introduction 15
  2.2 Profit and Loss Account (Income Statement) 17
  2.3 Balance Sheet 26
  2.4 Balance Sheet Comparison: BA *vs* AMR 36
  2.5 Cash Flow Statement 38
  2.6 Value Added Statement 42
  2.7 Cash Value Added 43
  2.8 Progress Towards Greater Accounting Standardisation 44
  Appendix 2.1 Frequent Flyer Programme Award Accounting 47
  Appendix 2.2 Accounting for Finance and Operating Leases 51

3 Airline Financial Ratios 55
  3.1 Performance/Earnings Ratios 56
  3.2 Risk or Solvency Ratios 59
  3.3 Liquidity Ratios 62
  3.4 Stock Market Ratios 64
  3.5 Inter-airline Comparison of Financial Ratios 69
  3.6 Interpretation Problems 72

4 Airline Valuation 75
  4.1 The Valuation of Intangible Assets 75
  4.2 The Valuation of Tangible Assets 83
  4.3 The Valuation of the Airline as a Whole 84
  4.4 Ratings Agencies 88

5 Sources of Finance 91
  5.1 Sources of Internal Finance 92
  5.2 Sources of External Finance 93
  5.3 Institutions Involved in Aircraft Finance 100

Appendix 5.1 Term Loan Repayment, Book Profit and Manufacturers' Pre-payments 109

6 Equity Finance 113
- 6.1 Share Issues 113
- 6.2 Equity Finance for Start-up Airline 115
- 6.3 Foreign Ownership Limits 117
- 6.4 Share Trading and Stock Market Listings 119
- 6.5 Initial Public Offering (IPO) 124
- 6.6 Mergers and Cross-Investment 126

7 Airline Privatisation 129
- 7.1 Full Privatisation through Flotation – British Airways 131
- 7.2 Full Privatisation through Trade Sale and Flotation – Qantas 135
- 7.3 Gradual Privatisation – Lufthansa 137
- 7.4 Partial Privatisation – Kenya Airways 139
- 7.5 Full Privatisation and Trade Sale – Iberia 142
- 7.6 Gradual Privatisation and Acquisition – Air France 142
- 7.7 The Results so Far 145

8 Airline Financial Planning and Appraisal 151
- 8.1 Budget Preparation and Control 151
- 8.2 Working Capital Management 156
- 8.3 Financial Planning 160
- 8.4 Start-up Airline Business Plan 171

9 Risk Management: Foreign Currency and Fuel Price 175
- 9.1 Exchange Rate Volatility 175
- 9.2 Airline Trading Exposure to Currency Movements 178
- 9.3 Airline Balance Sheet Exposure to Currency Movements 183
- 9.4 Airline Foreign Exchange Risk Management 184
- 9.5 Fuel Price Exposure 189

10 Aircraft Leasing 195
- 10.1 Finance Lease 197
- 10.2 Operating Lease 200
- 10.3 Japanese Operating Lease (JOL) 203
- 10.4 Wet Lease 204
- 10.5 Sale and Leaseback 204
- Appendix 10.1 Lease Rental Calculations 206
- Appendix 10.2 Lease *vs* Buy Decision 207

11 Aircraft Securitisation 211
- 11.1 Equipment Trust Certificates 212
- 11.2 ALPS 92-1 Securitisation 213
- 11.3 ALPS 94-1 Securitisation 215

11.4 Airplanes 96 Securitisation 215
11.5 ALPS 96-1 Securitisation 216
11.6 More Recent Securitisations (2005/2006) 217
11.7 Conclusions 217

12 Airline Bankruptcy 219
12.1 North America 219
12.2 Latin America 223
12.3 Europe 224
12.4 Australasia 226
12.5 Summary 227

13 Industry Financial Prospects 229
13.1 World Airline Traffic and Financial Forecasts 229
13.2 World Airline Capital Expenditure Projections 231
13.3 World Airline Financial Requirement Forecasts 232

Bibliography *235*
Glossary of Terms *239*
Index *251*

Chapter 11

Aircraft Securitisation

Securitisation, which started in the US in the mid-1970s, is the conversion of identifiable and predictable cash flows into securities. The advantages of this to lenders are:

- Risk is spread over a number of lenders.
- Risk may be spread over a number of world regions.
- Greater size reduces costs of administration.
- The loan or asset is removed from the balance sheet.

For the borrower, the cost of finance would be significantly lower than would otherwise be the case.

Securitisation involves the re-packaging of cash flows or receivables into securities which are then sold to investors. This is often done in different tranches, each tranche having different rights and risks attached. Higher credit ratings, and thus lower borrowing costs, can be achieved than would be possible for the separate parties involved in each lease or mortgage. Ratings are given to each of the securities by agencies such as Standard & Poor's or Moody, thereby making them more saleable to institutions. The cash flows could be short-term, for example with the sale of accounts receivables from travel agents, or on credit cards. They could be medium-term, with the sale of five- to ten-year aircraft operating lease or vehicle loan receivables. Or they could be long-term, with the sale of home mortgage receivables of loan principal and interest.

In the case of house mortgages, the loan portfolio is sold to a third party company by the bank that originally provided the finance. This bank would continue to earn fees from the management of the portfolio, and the loans would be removed from the balance sheet to allow it to expand its business.

There has, however, been some debate about whether securitised assets should be removed from the balance sheet, even though substantially all of the risks and rewards of owning the assets has been transferred (sold) to another company. A London law firm, Freshfields, described securitisation as:

> The packaging of assets, backed by appropriate credit enhancement and liquidity support, into a tradable form through an issue of highly rated securities, which are secured on the assets and serviced from the cash flows which they yield.[1]

---

[1] Verchère, I. (1994) *The Air Transport Industry in Crisis*, EIU, p. 119.

Aircraft finance ranges from the traditional structures which rely on airline credit to those which rely on aircraft value. As one goes from left to right along the spectrum shown in Figure 11.1, the financing is less related to the airline's corporate credit rating and more to the aircraft asset risk. On the far right, the securitisations are not linked at all to an airline's credit rating.[2]

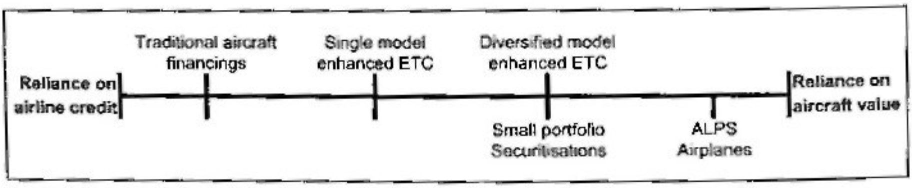
Reliance on airline credit
Traditional aircraft financings
Single model enhanced ETC
Diversified model enhanced ETC
Small portfolio Securitisations
ALPS Airplanes
Reliance on aircraft value

Figure 11.1 Aircraft financing spectrum
Source: Standard and Poor's

The remainder of this chapter will describe the securitisation of aircraft and similar financing structures, which has important implications for the long-term financing of the industry. They also provided one of the means for Guinness Peat Aviation (GPA) to recover from near bankruptcy (see 5.3.3).

11.1 Equipment Trust Certificates

The Equipment Trust Certificate (ETC) is often described as a securitisation. However, the ETC is created more for tax reasons than for the spreading of risk and lowering borrowing costs. It would typically include only one or two aircraft.

A trustee issues equipment trust certificates to investors, and uses the funds raised to buy the aircraft, which is then leased to the airline which ordered it. It is, however, a form of secured debt financing, and not a true lease since the aircraft is ultimately owned by the airline. It would provide protection from airline bankruptcy in the same way as securitisation, but so would secured debt finance.

The certificates can generally be sold to institutions at a slightly higher rating than that of the airline. They often have the added attraction of being tradable.

A modified version of the, ETC is the Enhanced Equipment Trust Certificate (EETC), which looks more like the aircraft securitisations described below, and is further to the right in terms of relying more on asset risk in Figure 11.1. Rather than selling one type of certificate or bond, the EETC divides these into different categories, each of which has a different risk/reward profile in terms of security and access to lease rental cash flows. A structure of this type will give the senior (lower risk) certificates a much higher credit rating than under the, ETC. But the essential difference of aircraft ownership between EETC and securitisation still remains, the latter spreading the risk over more than one airline.

---

[2] Standard & Poor's, (2001), *Aircraft Securitization Criteria*, www.standardandpoors.com/ratings, pp. 3–4.

The EETC was developed in the US in the 1990s as a means for non-investment grade airlines to source funds using investment grade ratings, with the added advantage of giving more protection to the owner of the aircraft in the event of Chapter 11 bankruptcy.

An example of an EETC was the refinancing of 13 A320s operated by Northwest Airlines, and originally financed by Airbus. This involved the sale by a trustee of $352m of notes of four classes, with the highest class rated A by Standard & Poor's. The notes are secured by the 13 aircraft, which are leased back from the trust/partnership by Northwest.[3]

More recently, American Airlines refinanced its acquisition of TWA with a $1.3 billion EETC. This offered five classes of securities or notes, with the A class rated AAA and A2 by S&P and Moody respectively. The initial loan to value ratio for the top class was 41 per cent, giving a large cushion in case the underlying aircraft needed to be sold in a weak market. The lowest class, the D notes, were rated BBB/Baa2, and had a loan to value ratio of 66.5 per cent. Maturities of the notes ranged from seven to 20 years, and the coupons (interest rates) ranged from 142 basis points (1.42 per cent) over prime rate to 270 basis points. The collateral was 32 MD-11s, 10 B737-800s and four B777s, all belonging to TWA.[4]

Outside the US, EETCs are still rare, with only Qantas and Iberia using them by the middle of 2001, the latter denominated in euros. Iberia later issued Iberbond, 2004, a complex deal that combined an EETC structure with Japanese Operating Leases. It was secured against 20 A319/A320/A321 aircraft valued at US$933 million, and the debt was denominated in a mixture of US dollars and Euros.

11.2 ALPS 92-1 Securitisation

The first international securitisation of aircraft was offered by Guinness Peat Aviation (GPA) in mid-1992, with the help of Citicorp Investment Bank and Lehman Brothers International. A total of 14 aircraft valued at US$380 million were leased to the the various airlines at the time of launch of ALPS 92-1, with their share of aircraft appraisal value indicated in brackets as seen in Table 11.1.[5]

The North and Central America regional share of aircraft value was 28.5 per cent, the European share 42.2 per cent and the Asian share 29.4 per cent. All except Malev and China Southern are now majority owned by private interests, although BWIA, Air Jamaica and Philippine Airlines were government controlled at the time of the issue.

The portfolio of aircraft consisted of six B737s (various series), one B757, one B767ER, one B747, 2 MD-82/83, one A300, one A320 and one Fokker 100. This gave a spread of manufacturers and sizes, but not of range capability (only two long-haul aircraft).

---

[3] *Transport Finance* (13 January 1995).

[4] *Airfinance Journal* (June 2001), 18.

[5] Radley, A.B. (1994), *Future Strategies in Aircraft Leasing*, MSc Thesis, Cranfield University, September.

The assets were sold to a Jersey-based special purpose company, which was financed by equity and $380 million worth of bonds (the senior debt portion of which was rated AA by Standard and Poor) to be repaid from the cash flows generated from the lease payments, plus the proceeds of any subsequent sales of aircraft in the portfolio. Equity investors would get 10–12 per cent semi-annual dividends, plus a share in any residual value of the aircraft at maturity. Investors in the company were various European financial institutions, principally banks (39 per cent), fund managers (32 per cent) and insurance companies (16 per cent).

Table 11.1 ALPS 92-1 aircraft portfolio

North America:	Canadian (7.4%)
Caribbean:	Air Jamaica (6.0%), BWIA (5.4%)
Latin America:	TAESA (9.7%)
Europe:	Sun Express (5.5%), Malev (5.6%), Istanbul Airlines (5.%), British Midland (5.7%), Spanair (15.0%, Portugalia (4.6%)
Asia:	Asiana (5.6%), China Southern (5.0%), Philippine Airlines (13.4%), Korean Air (5.4%)

Table 11.2 ALPS 92-1 bond amounts and interest rates

	Amount $ million	Interest Rate
Subclass *A*-1 Certificates	208.4	7.75% fixed
Subclass *A*-2 Certificates	104.2	6 million LIBOR + 0.8%
Subclass *A*-3 Certificates	70.4	3 million LIBOR + 0.7%
Class M Certificates	34.0	6 million LIBOR + 6.1%
Class B Certificates	104.0	12.00%
Total	521.0	

Source: ALPS 92-1 Offering Circular

GPA was appointed to provide administrative and management services to the company for a fee of 0.15 per cent of the initial purchase price of the aircraft. They would also provide support in the form of re-marketing and re-leasing the aircraft.

11.3 ALPS 94-1 Securitisation

GPA's second aircraft securitisation in 1994 packaged 18 aircraft valued at US$980 million. Aircraft included in the portfolio had a low average age, and the success of the sale was helped by the upturn in aircraft values and lease rates, although some concern was expressed by potential investors that any forced sale of a number of aircraft at the next downturn might result in low values and losses.

The special purpose company was given more flexibility than under the terms of ALPS 92-1 in selling aircraft to pay down the debt. Aircraft were also required to be sold, once their lease term had expired. If any lessee defaulted, then a new lease and aircraft should be substituted in the portfolio from a designated back-up pool of aircraft.

11.4 Airplanes 96 Securitisation

The main purpose of the Airplanes securitisation in early 1996 was to further downsize GPA and remove just over $4 billion in debt off its balance sheet. The number of aircraft remaining under GPA ownership was reduced by 229 aircraft to 129 (down from its high of 380 in 1993). This left GPA with around $1 billion in debt, secured on individual aircraft in their fleet.

This securitisation dwarfed previous ones in sheer size. The portfolio of 229 aircraft were placed with 83 lessees. The $4 billion in bonds were successfully placed on the market by emphasising the growing attraction of operating leases to both large and small airlines, the spread of risk across regions (see Table 11.3), and the involvement of GE in the management of the leases. Investors would also be totally insulated from any further problems that might be faced by GPA. Morgan Stanley was the bank responsible for selling the bonds, in return for which they earned $20 million in fees (or 0.5 per cent of the total value).

Table 11.3 Airplanes securitisation – Aircraft numbers and values

Lessee region	Number of aircraft	% of total value
Africa	3	0.7
Asia	24	15.0
Australia	4	0.3
Europe	66	34.4
North America	44	17.3
Latin America	75	28.4
Other	4	1.1
Off-lease	9	2.8
Total	229	100.0

Source: Airfinance Journal, July/August 1996

One concern of potential investors in the bonds was the numbers of aircraft involved and the possible affect on aircraft prices, at for example the bottom of the next recession, if even 10 per cent of the total portfolio were offered for sale as a result of a lessee bankruptcy. This was addressed by a greater emphasis of the cash flows from the lease rentals as opposed to the security from aircraft residual values.

As with previous securitisations, efforts were made to give a spread of both regions of operation and of aircraft types. As with ALPS 92-1, the senior bonds were rated AA by Standard & Poor's, ensuring their acceptance by institutional investors.

Table 11.4 Airplanes securitisation – Bond amounts and interest rates

	Initial amount (US $ million)	Interest Rate
Subclass *A*-1 Certificates	850	LIBOR +0.25%
Subclass *A*-2 Certificates	750	LIBOR +0.32%
Subclass *A*-3 Certificates	500	LIBOR +0.47%
Subclass *A*-4 Certificates	200	LIBOR +0.62%
Subclass *A*-5 Certificates	598	LIBOR +0.35%
Class B Certificates	375	LIBOR +1.1%
Class C Certificates	375	8.15%
Class D Certificates	400	10.88%
Total	4,048	

Source: *Airfinance Journal*, July/August 1996

11.5 ALPS 96-1 Securitisation

ALPS 96-1 was the refinancing of the original ALPS 92-1 securitisation which resulted in the withdrawal of GPA and GECAS. GPA was repaid its share of the class M bonds. Babcock and Brown took over as the managers of the portfolio from GPA.[6]

Only one of the original 14 aircraft was replaced:[7] the B737-300 originally leased to the Turkish carrier, Sun Express, was sold for US$25 million at a book loss of $1.6 million. This aircraft was replaced by a B767-300ER belonging to Whirlpool Financial Corporation, which had recently come off lease. Otherwise all the original lessees were unchanged with the exception of an MD 82 which was now leased to TWA (replacing Korean Air) and a B757-200 now with Transwede (replacing TAESA).

---

[6] *Airfinance Journal*, (July/August 1996), pp. 20–21.

[7] GPA did have problems with a number of other leases, for example in connection with eight DC9s to a Mexican carrier and a number of leases with the Brazilian airline, VASP, but these were not in the portfolio.

The new appraised value of the 14 aircraft was \$455 million, compared to the \$522 million value under ALPS 92-1. Aircraft like the Airbus A300B4 had seen their value fall from \$31 million in 1992 to only \$13 million in 1996. The B767-300ER leased to Spanair, however, only declined from \$78 million in 1992 to \$68 million in 1996.

11.6 More Recent Securitisations (2005/2006)

The first securitisation since 2003 was offered by AerCap (previously debisdebis Airfinance) in September 2005 for US\$942 million. This was followed at the end of 2006 by Aviation Capital Group which securitised leases on 74 aircraft to finance its purchase of operating lessor, Boullioun. The ACG Trust III deal raised US\$1.86 billion, by issuing a triple A rated *G*-1 tranche (\$1.62 billion), an A-rated *B*-1 tranche (\$117.5 million) and a tranche (\$122.5 million) rated at BBB − (non investment grade). Most of the aircraft portfolio consisted of newer narrow bodied aircraft, with over 50 per cent B737-800s and A320-200s, and an overall average age of only 4.8 years.[8]

Aircastle, a fast growing operating lessor, securitised leases valued at US\$560 million in June 2006, in addition to their IPO which raised \$194 million to repay debt.

11.7 Conclusions

Securitisation has not been widely used since its establishment at the beginning of the 1990s. If were solely a device for GPA to avoid bankruptcy, then the next major economic downturn may see another impetus to its use. Its future will also clearly depend on future trends in operating leases: will they continue to increase in importance, particularly in areas like Asia, where they have not to date been so popular? This is part of the larger question of the separation of ownership and operation of assets. Next is the question of accounting practice, and whether securitised assets will be removed from balance sheets.

The advantages are persuasive, and centre on the reduced cost of borrowing for airlines: before the ALPS 92-192–1 securitisation, banks had lent GPA 75 per cent of the value of its leases at LIBOR plus 2 per cent. When the leases were securitised, the special purpose company could borrow 87 per cent of their value at LIBOR plus 1.4 per cent.[9]

Possible disadvantages of securitisation are a weakening of the relationship between the lessee and the lessor, as well as the additional workload imposed on the airline as a result of the increased number of parties involved. Second, it might be argued that the contracting out of the monitoring and technical administration tasks to specialist firms might prove to be less thorough than when they were performed by the operating lessors themselves.

---

[8] *Airfinance Journal*, February (2006).

[9] *Financial Times*, Supplement on International Capital Markets, (10 June 1996).

EETCs, as an alternative form of securitisation not involving operating lessors, look likely to become popular outside the US, and if they took off in other parts of the world they could provide a replacement to JLLs and other taxed based financing.